Bachelor Technische Informatica

Kroket

Kroket

Software User Manual

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Abstract

This document is the user manual for the KROKET system. This program is part of the Software Engineering Project (2IP35) at Eindhoven University of Technology.

The document complies with the Software User Manual (SUM) from the Software Engineering Standard, as set by the European Space Agency[1].

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Chapter 1

Introduction

1.1 Intended readership

This document is intended for all end-users of the KROKET website, which are students and their coaches at the Eindhoven University of Technology (TU/e).

1.2 Applicability

This document applies to the latest release of the KROKET website, which is release 5.

1.3 Purpose

The purpose of KROKET is, as stated in the URD [2], to aid students in determining their choice for electives.

1.4 List of abbreviations

ASCII	American Standard Code for Information Interchange
ECTS	European Credit Transfer System
ESA	European Space Agency
KROKET	Kies niet Roekeloos maar Objectief Keuzevakken Efficiënt en Tevreden
OWInfo	Onderwijsinformatie
TU/e	Eindhoven University of Technology
URD	User Requirements Document

1.5 List of references

1. ESA Board for Software Standardization and Control (BSCC). European space agency software engineering standards, February 1991. (ESA PSS-05-0 Issue 2).

2. KROKET group, User Requirements Document (URD), September 2012.

1.6 How to use this document

First-time users are encouraged to read chapter 3 and follow each tutorial to develop a basic understanding of the website of KROKET.

More experienced users can use the reference in chapter 4 to find out more about specific features of KROKET.

1.7 Related documents

URD The User Requirements Document for the KROKET project.

1.8 Conventions

Italics All words in *italics* are text you will find on screen.

1.9 Problem reporting

Since the KROKET group will be dissolved after completion of the KROKET project, problem reports are not our responsibility. However, problems can be reported to `tue-inf-sep-1213-appvoorbachelorcollege@projexy.nl` up to three months after completion of the project.

Chapter 2

Overview

KROKET is an application designed and developed by the KROKET group for the Bachelor college at the Eindhoven University of Technology. The purpose of the application is to support students in determining their choice for electives. Students can search subjects and add them to their schedule. The schedule can be validated, saved and printed.

Chapter 3

Tutorial

This section contains tutorials for performing all actions and operations supported by KROKET. They are grouped by the screens on which you can perform these actions.

3.1 Register

3.1.1 Functional description

This tutorial describes how to register yourself as a new user of KROKET.

3.1.2 Cautions and warnings

- The username only contains (capital-)letters (a-z), numbers (0-9), dashes (-), underscores(_), and periods (.). It may not contain more than one period in a row.
- The length of the username is in the range [5, 20].
- The password only contains combinations of non-control ASCII characters. A minimum of 8 characters is required.
- The username and the password are case-sensitive.

3.1.3 Procedures

Start a webbrowser and go to the website of KROKET. The screen, as shown in figure 3.1, will show up.

Since you want to register, click on the button *Register*. This will bring up the screen as shown in figure 3.2.

Now please enter the following:

- For *Username*, enter a name for your account.
- For *Password*, enter a password.
- For *Password (confirm)*, enter the same password again.

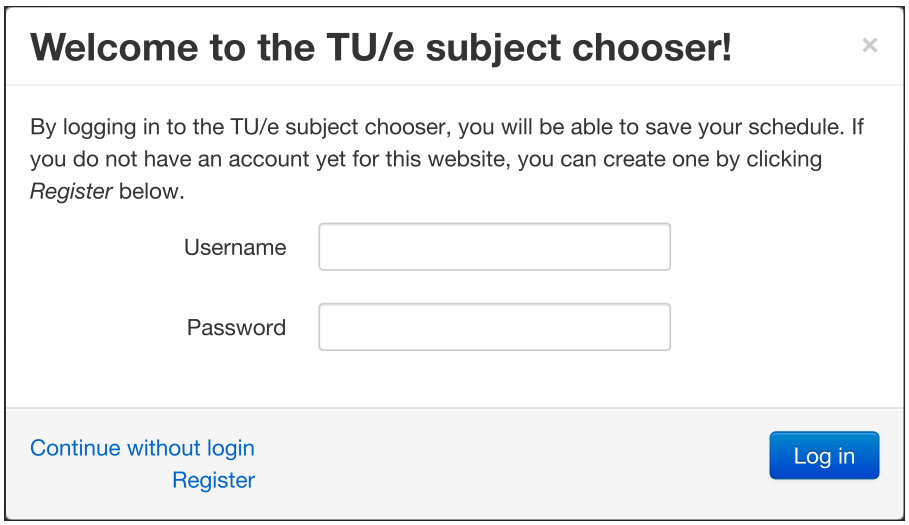
Welcome to the TU/e subject chooser!
By logging in to the TU/e subject chooser, you will be able to save your schedule. If you do not have an account yet for this website, you can create one by clicking *Register* below.
Username
Password
Continue without login
Register
Log in

Figure 3.1: The pop-up screen when visiting the site.

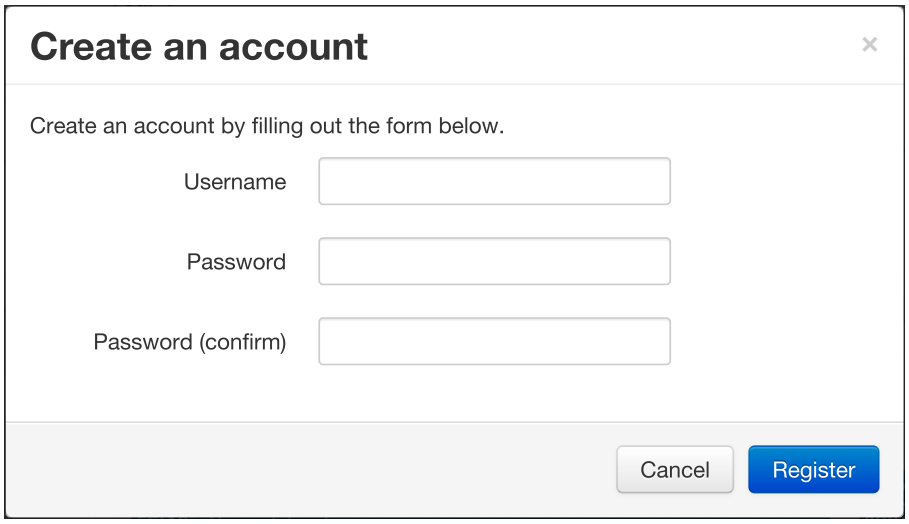

Figure 3.2: Registration screen

Finally, click on the button labeled *Register*. You are now registered as a user of KROKET and can log in (see section 3.2).

3.1.4 Likely errors

- When you entered a username that already exists in the KROKET system, a warning will show up, saying that the username is already taken.
- When you entered a username that does not conform to the conditions given for a username, a warning will show up, saying that the username must be of 5-20 characters and may contain only a-z, A-Z, 0-9, ., -, _.
- When you entered a password that does not conform to the conditions given for a password, a warning will show up, saying that the password must be at least 8 (non-control ASCII) characters.
- When the values entered in *Password* and *Password (confirm)* are not the same, a warning will show up, saying the passwords do not match. You should clear the password fields and enter the password again.

3.2 Log in

3.2.1 Functional description

This tutorial describes how to log in as a user of KROKET.

3.2.2 Cautions and warnings

- Be sure to be a registered user in the system (see section 3.1).

3.2.3 Procedures

Before you start, please be sure to know:

- Your username.
- Your password.

Start a webbrowser and go to the website of KROKET. The screen, as shown in figure 3.1, will show up. Now enter the following:

- For *Username*, enter the username you supplied during registration.
- For *Password*, enter the password you supplied during registration.

Now click on *Log in* and the home page of KROKET will show, see figure 3.3.

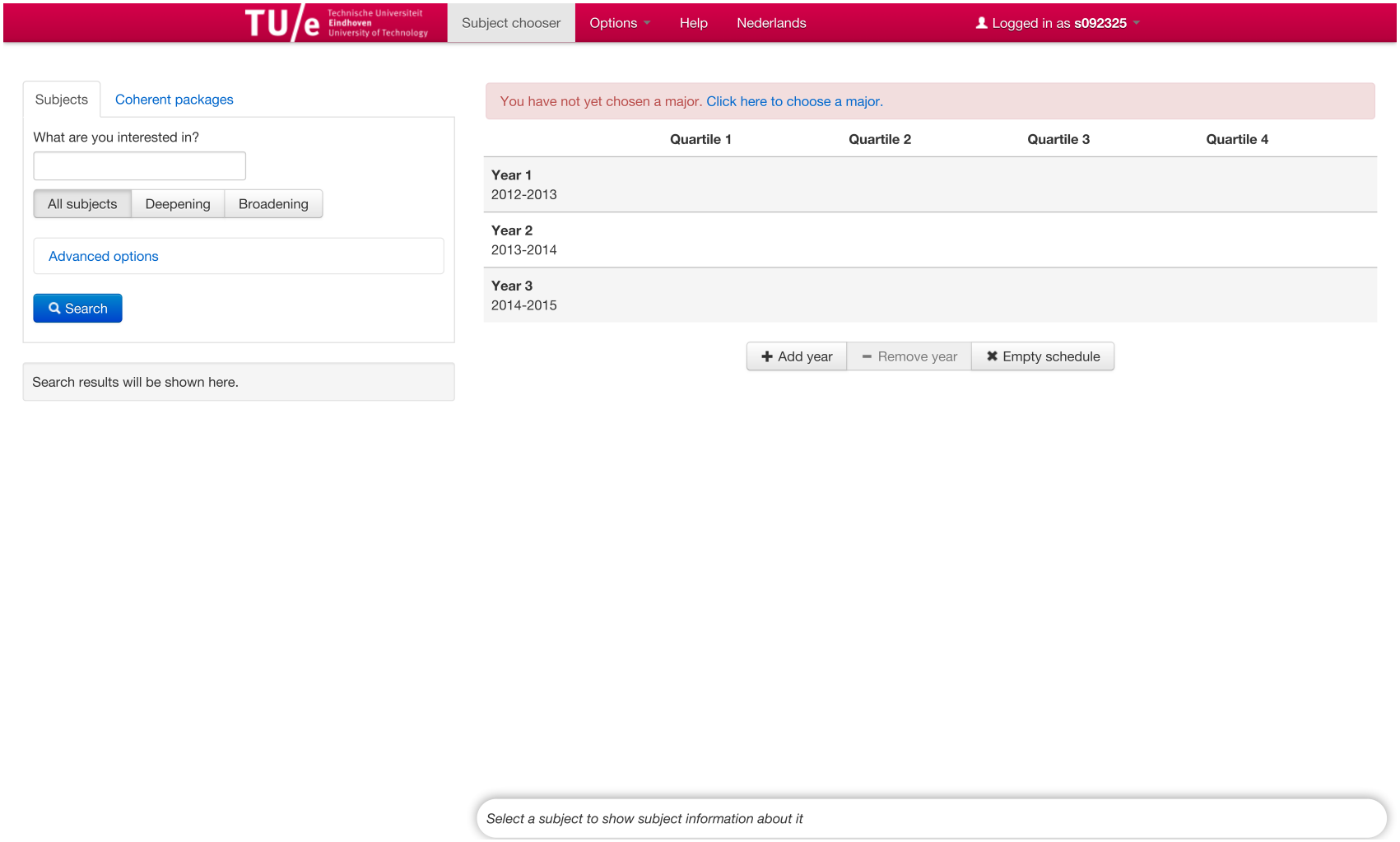

Figure 3.3: The home page of KROKET

Figure 3.4: The warning of choosing a major.

3.2.4 Likely errors

- When the username or password you supplied is not correct, a warning will show up, saying that your username or password is incorrect. Please re-enter your username and/or password and click *Login* again.

3.3 Log out

3.3.1 Functional description

This tutorial describes how to log out of KROKET.

3.3.2 Cautions and warnings

- You must be logged in before you can log out (see section 3.2).
- Any unsaved changes are lost when logging out (see section 3.17).

3.3.3 Procedures

From any screen within KROKET except for the help or about page, click on the *Log out* button at the right of the navigation bar.

3.4 Choose major

3.4.1 Functional description

This tutorial describes how to choose a major.

3.4.2 Cautions and warnings

None.

3.4.3 Procedures

On the home page of KROKET (figure 3.3), click on *Click here to choose a major* in the warning shown (see figure 3.4).

The screen, as shown in figure 3.5, will show up. Now choose the following information:

- The first year of the study on the TU/e.

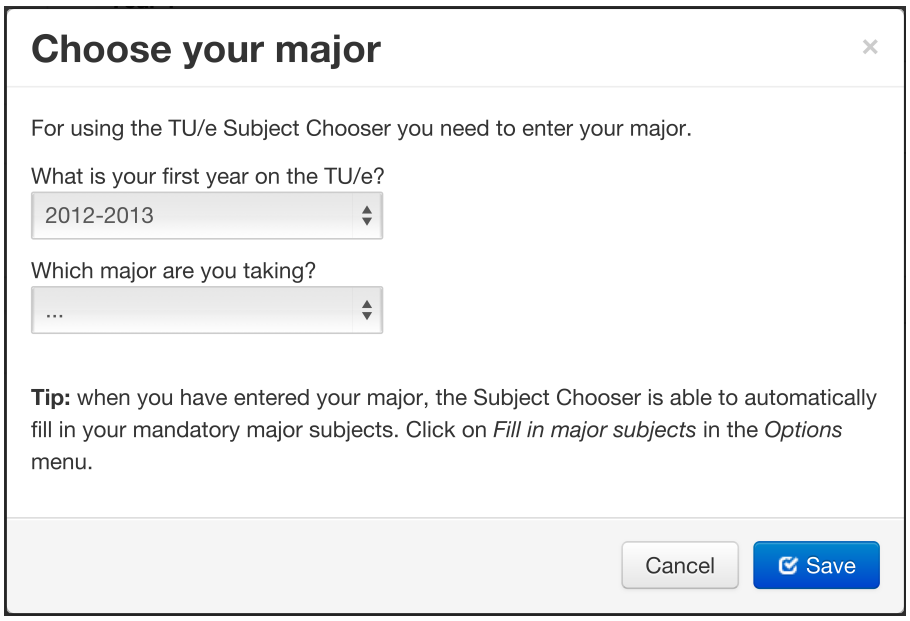
Choose your major
For using the TU/e Subject Chooser you need to enter your major.
What is your first year on the TU/e?
2012-2013
Which major are you taking?
...
Tip: when you have entered your major, the Subject Chooser is able to automatically fill in your mandatory major subjects. Click on Fill in major subjects in the Options menu.
Cancel
Save

Figure 3.5: The screen for choosing a major.

- The major of the study on the TU/e.

Finally, click on *Save* and the home page is shown without a warning saying you have not yet chosen a major (see figure 3.6).

3.4.4 Likely errors

None.

3.5 Change major

3.5.1 Functional description

This tutorial describes how to change a major.

3.5.2 Cautions and warnings

None.

3.5.3 Procedures

On the home page of KROKET (see figure 3.6), click the *Options* button in the navigation bar. A dropdown menu will appear. Click *Change major* there.

The same dialog as figure 3.5 will appear. Again, choose the following information:

- The first year of the study on the TU/e.

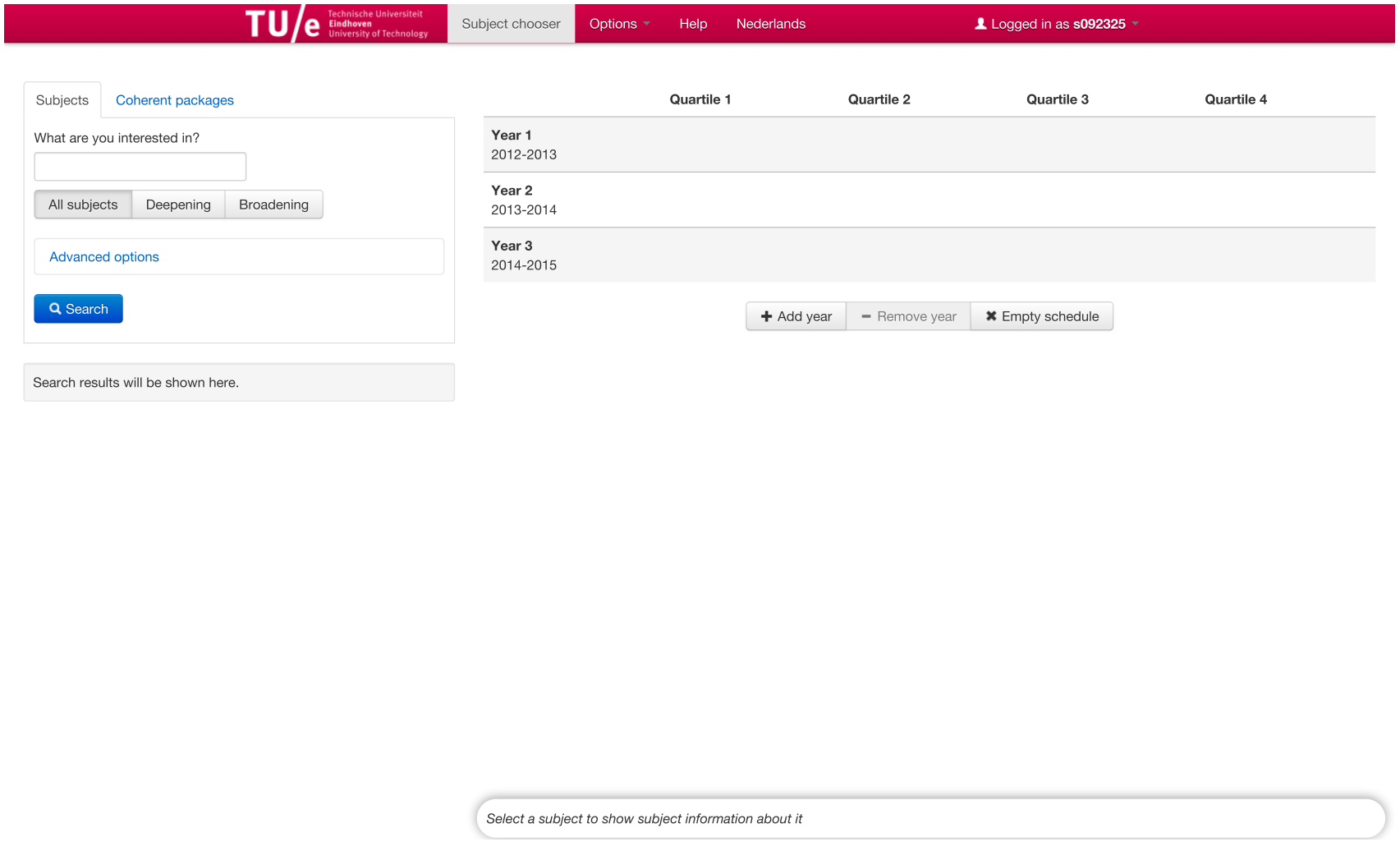

Figure 3.6: The home page of KROKET.

- The major of the study on the TU/e.

Finally, click on *Save* and the home page is shown (see figure 3.6).

3.5.4 Likely errors

None.

3.6 Fill in major subjects

3.6.1 Functional description

This tutorial describes how to fill the schedule with all major subjects.

3.6.2 Cautions and warnings

- Make sure that you have chosen a major (see section 3.4 or section 3.5).

3.6.3 Procedures

On the home page of KROKET (figure 3.6), click the *Options* button in the navigation bar. A dropdown menu will appear. Click *Fill in major subjects* there.

The subjects of the chosen major are now inserted into the schedule.

3.6.4 Likely errors

- If you did not choose a major, the *Fill in major subjects* button is disabled. To enable this button, choose a major (see section 3.4 or section 3.5).

3.7 Search subjects

3.7.1 Functional description

This tutorial describes how to search a subject using the regular search function.

3.7.2 Cautions and warnings

- For searching on broadening or deepening subjects, be sure that a major is chosen (see section 3.4).

3.7.3 Procedures

On the left side of the home page (figure 3.6), there is a *Subjects* tab. In this tab you can search for subjects on the following criteria (see figure 3.7):

- *Search term*. In this field you can enter search terms. This does not have to be a subject code or name, but can also be general interests.

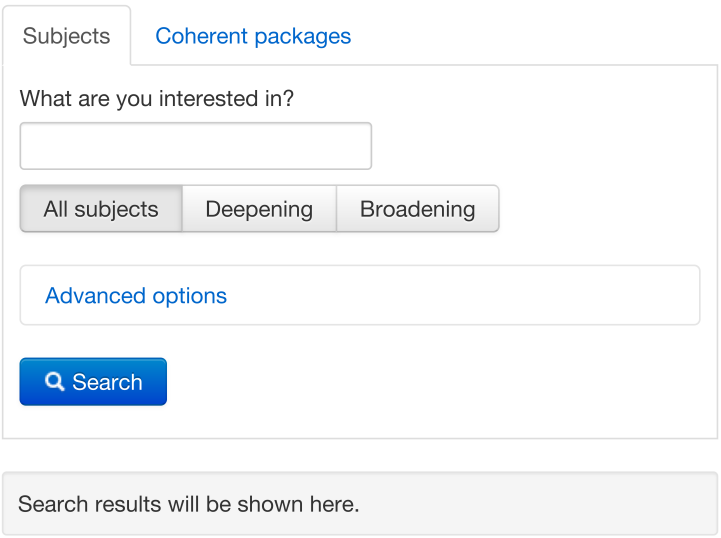

Figure 3.7: The *Subjects* tab for searching on subjects.

- *Deepening/broadening*. Deepening subjects are subjects related to your own major. Broadening subjects are subjects of other majors. To search on this criteria, just click on the corresponding button to activate the filter.

To get a list of search results, click on the *Search* button. Figure 3.8 shows the results after searching for *Computer* when the user's major is *Software Science*.

3.7.4 Likely errors

- When no major is chosen and the user searches on deepening of broadening subjects, a warning is shown saying that for searching on deepening/broadening subjects a major has to be chosen first.

- When there are no subjects returned, the search request does not correspond to any subjects.

3.8 Advanced search subjects

3.8.1 Functional description

This tutorial describes how to search for subjects with the advanced search function.

3.8.2 Cautions and warnings

None.

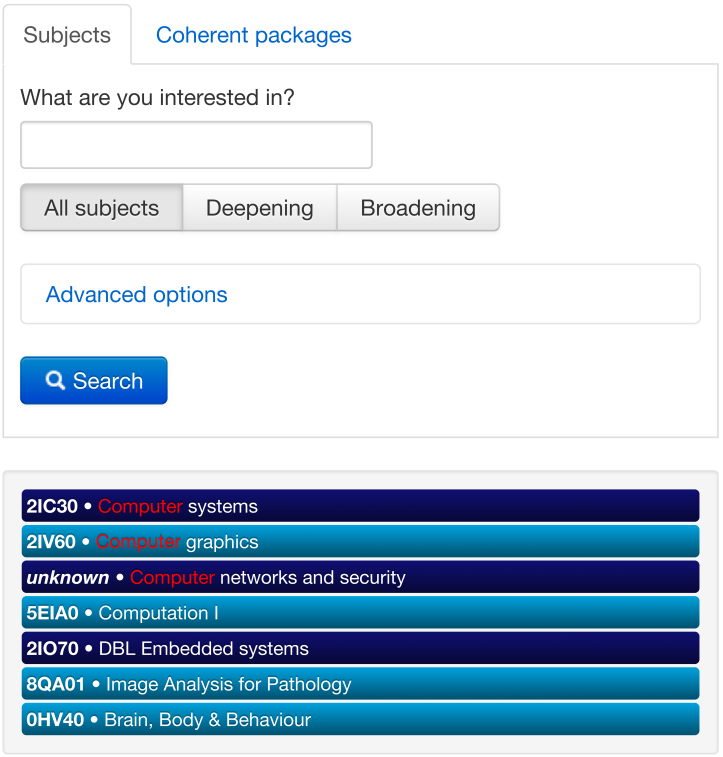

Figure 3.8: The result of searching for *Computer* with the major *Software Science*.

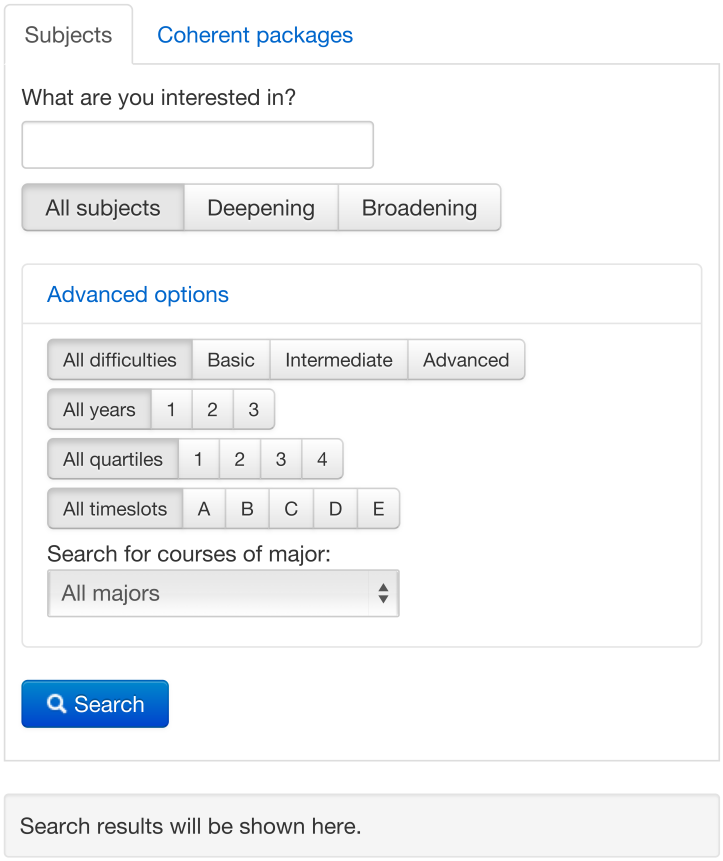

Figure 3.9: The *Subjects* tab for advanced searching on subjects.

3.8.3 Procedures

On the left side of the home page (figure 3.6), there is a *Subjects* tab. When you click on *Advanced options*, you can search on the following criteria (see figure 3.9):

- *Difficulty*. Subjects are classified into *Basic*, *Intermediate* and *Advanced*. This information is used to make elective subjects 'challenging' enough.
- *Year*. This searches on subjects that are given in a certain year of a study.
- *Quartile*. This searches on subjects that can be taken in a certain quartile. It can be used if you need a subject in a certain quartile.
- *Timeslot*. This searches on subjects that are taught in a certain timeslot. This is most useful when used in combination with a quartile search.
- *Major*. This allows users to search on subjects belonging to a major.

To search on the criteria, click on the corresponding buttons to activate the filters.
To get a list of search results, click on the *Search* button.

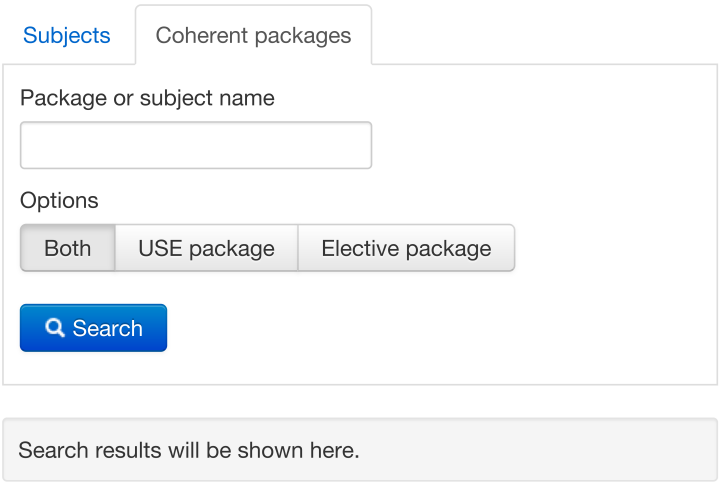

Figure 3.10: The *Coherent packages* tab for searching on packages.

3.8.4 Likely errors

- When no subjects are returned, the search request does not correspond to any subject. Please make a new search request.

3.9 Search packages

3.9.1 Functional description

This tutorial describes how to search for packages.

3.9.2 Cautions and warnings

None.

3.9.3 Procedures

On the left side of the home page (figure 3.6), there is a *Coherent packages* tab. In this tab you can search for packages on the following criteria (see figure 3.10):

- *Search term*. In this field you can enter search terms. This does not have to be a package name, but can also be a subject name or subject code of a subject in the package.
- *Package type*. This is either *USE package* or *Elective package*.

To get a list of search results, click on the *Search* button. Packages are colored grey. If you click on a package, the subjects in the package are shown. Figure 3.11 shows the result after searching for *Brain* in an elective package.

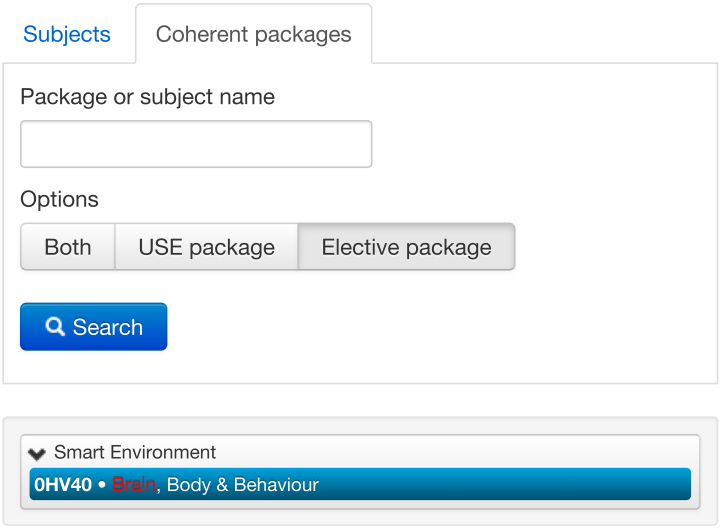

Figure 3.11: The result of searching for *Brain* in an elective package.

3.9.4 Likely errors

- When no subjects are returned, the search request does not correspond to any packages.

3.10 Get subject information

3.10.1 Functional description

This tutorial describes how to get additional subject information of a subject.

3.10.2 Cautions and warnings

None.

3.10.3 Procedures

Click on a subject to select it. The currently selected subject is a bit darker than other (not selected) subjects. On the bottom of the screen, the *Subject information* pop-up will be shown. In this pop-up, useful information about the subject can be found (see figure 3.12).

This information is divided in the following tabs:

- *General information*. The general information of a subject. It consists of the subject code, the subject name, the difficulty, the number of ECTS and the prerequisites. There is also a link to the OWInfo page of the subject, for even more information on the subject.

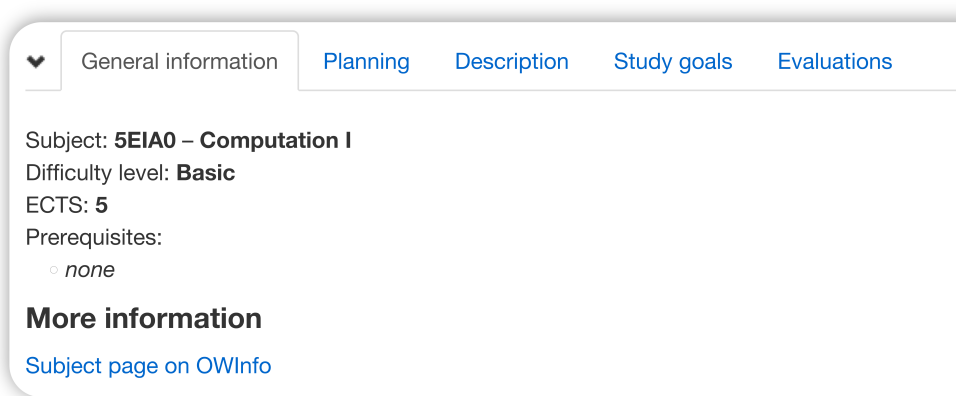

Figure 3.12: The *Subject information* pop-up for the subject *Computation I*.

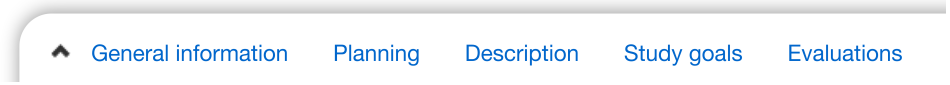

Figure 3.13: The hidden pop-up of *Subject information*.

- *Planning*. Shows which majors and which packages the subject is in. It also shows in which year, quartile and timeslot the subject is given.
- *Description*. The description of the subject.
- *Study goals*. The study goals of the subject.
- *Evaluations*. The grade that resulted from evaluations by students. The grade is on a scale from 1 to 10.

The information is shown when a user clicks on a tab.

You can hide the additional information at any time by clicking on the icon in the top left of the pop-up (see figure 3.13).

3.10.4 Likely errors

- Only the first time the information will pop up automatically. So once the pop-up is hidden again and you click on a subject, it will not pop up automatically. Click on its arrow icon to activate it (see figure 3.13).

3.11 Add subject

3.11.1 Functional description

This tutorial describes how to add a subject to the schedule.

3.11.2 Cautions and warnings

- Be sure the subject is not already in the schedule yet.

3.11.3 Procedures

First, click on a subject to select it. Some quartiles in the schedule will get a green background. These are the quartiles that the subject can be placed in (see figure 3.14).

Click on one of the quartiles to place the subject in the schedule. For convenience, drag-and-drop can also be used to place subjects into the schedule.

3.11.4 Likely errors

- When clicked on or dragged to another place in the schedule but the green background, nothing will happen.
- When clicked on another subject in the schedule, no subject is added to the schedule, but the other subject is selected. When dragged to another subject in the schedule, it will place the subject in the schedule, provided that it is a quartile with the green background.
- When a red border is shown around the quartile where the subject is added, there is another subject which has the same timeslot (see figure 3.15). Move or remove one of the two subject to get rid of the warning (see section 3.12 or section 3.13).

3.12 Move subject

3.12.1 Functional description

This tutorial describes how to move a subject to another place in the schedule.

3.12.2 Cautions and warnings

- Be sure the subject you want to move is already in the schedule (see section 3.11 to add a subject to the schedule).

3.12.3 Procedures

First, click on a subject to select it. Some quartiles in the schedule will get a green background. These are the quartiles the subject can be placed in (see figure 3.14).

Click on one of the quartiles to place the subject in the schedule. For convenience, drag-and-drop also can be used to place subjects into the schedule.

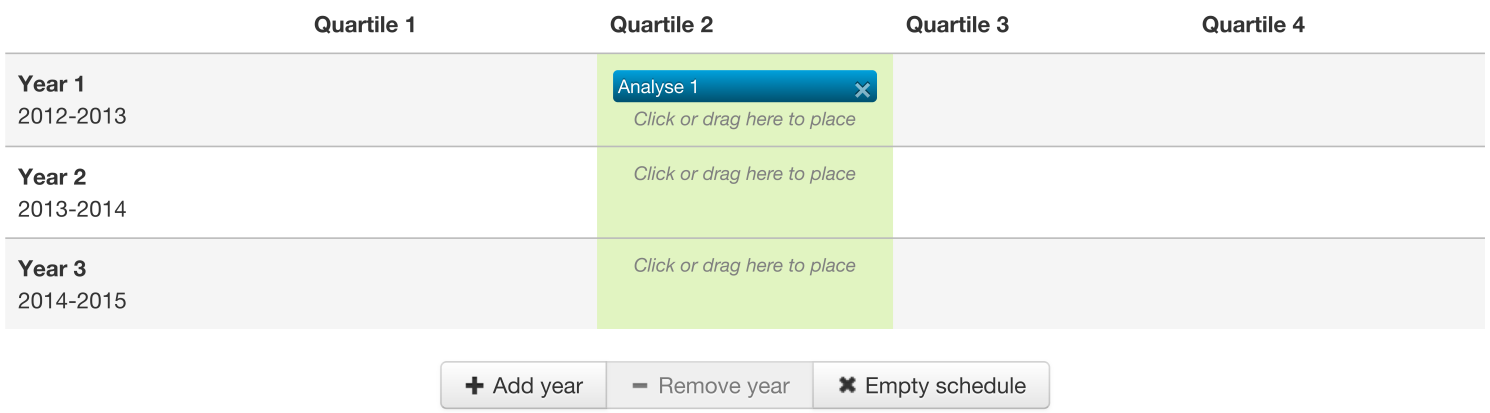

Figure 3.14: The green background when selected a subject.

Figure 3.15: The warning shown when two subjects of the same timeslot are added to the schedule.

Figure 3.16: The cross in the lower right corner of a subject.

3.12.4 Likely errors

- When clicked on or dragged to another place in the schedule but the green background, nothing will happen.
- When clicked on or dragged to the quartile the subject is already placed in, nothing will happen.
- When clicked on another subject in the schedule, no subject is added to the schedule, but the other subject is selected. When dragged to another subject in the schedule, it will place the subject in the schedule, provided that it is a quartile with the green background.
- When a red border is shown around the quartile where the subject is added, there is another subject which has the same timeslot (see figure 3.15). Move or remove one of the two subject to get rid of the warning (see section 3.12 or section 3.13).

3.13 Remove subject

3.13.1 Functional description

This tutorial describes how to remove a subject form the schedule.

3.13.2 Cautions and warnings

- Be sure the subject you want to remove is placed in the schedule (see section 3.11).

3.13.3 Procedures

In the lower right corner of a subject in the schedule, there is a cross (see figure 3.16). Click on this cross to remove the subject from the schedule.

3.13.4 Likely errors

None.

3.14 Add year

3.14.1 Functional description

This tutorial describes how to add an extra year to the schedule.

3.14.2 Cautions and warnings

- Be sure there are less than ten years in the schedule.

3.14.3 Procedures

Click on the button *Add year* under the schedule to add a year to the schedule (see figure 3.14).

3.14.4 Likely errors

- When there are ten years in the schedule, the *Add year* button is disabled. Remove a year to enable the *Add year* button (see section 3.15).

3.15 Remove year

3.15.1 Functional description

This tutorial describes how to remove a year from the schedule.

3.15.2 Cautions and warnings

- Be sure there are more than three years in the schedule.

3.15.3 Procedures

Click on the button *Remove year* under the schedule to remove a year from the schedule (see figure 3.14).

3.15.4 Likely errors

- When there are three years in the schedule, the *Remove year* button is disabled. Add a year to enable the *Remove year* button (see section 3.14).

3.16 Empty schedule

3.16.1 Functional description

This tutorial describes how to empty the complete schedule.

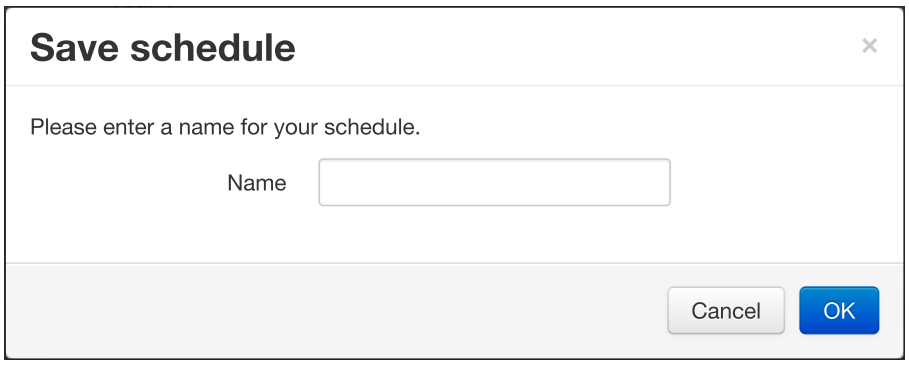

Figure 3.17: The *Save* screen.

3.16.2 Cautions and warnings

None.

3.16.3 Procedures

Click on the *Empty schedule* button under the schedule to empty the schedule (see figure 3.14).

3.16.4 Likely errors

None.

3.17 Save schedule

3.17.1 Functional description

This tutorial describes how to save a schedule.

3.17.2 Cautions and warnings

- You must be logged in to save a schedule (see section 3.2).

3.17.3 Procedures

On the home page of KROKET (figure 3.6), click the *Options* button in the navigation bar. A dropdown menu will appear. Click *Save* there.

The screen as shown in figure 3.17 will show up. Enter a name for the schedule and click on *OK*. The schedule is now saved.

3.17.4 Likely errors

- When nothing is entered in the *Save* screen and *OK* is clicked, there is shown a warning saying that the name of the schedule may not be empty. Re-enter a name for the schedule.
- Once you have saved a schedule and you click on *Save* again in the *Options* dropdown menu, the schedule is immediately saved with the name of the last loaded schedule, without showing the *Save* screen as shown in figure 3.17.

3.18 Save as schedule

3.18.1 Functional description

This tutorial describes how to save a schedule with a specified name.

3.18.2 Cautions and warnings

- You must be logged in to save a schedule (see section 3.2).

3.18.3 Procedures

On the home page of KROKET (figure 3.6), click the *Options* button in the navigation bar. A dropdown menu will appear. Click *Save as* there.

The screen as shown in figure 3.17 will show up. Enter a name for the schedule and click on *OK*. The schedule is now saved.

3.18.4 Likely errors

- When nothing is entered in the *Save* screen and *OK* is clicked, there is shown a warning saying that the name of the schedule may not be empty. Re-enter a name for the schedule.
- When a name is entered that already exists for that account in the database of *kroket*, there is shown a window (see figure 3.18) saying that the name is already taken and asking if the user wants to overwrite it. When clicked on *Yes*, the schedule is saved. When clicked on *No*, the *Save* screen is shown again, see figure 3.17. When clicked on *Cancel*, the save operation in canceled and KROKET returns to the home page (figure 3.6).

3.19 Load schedule

3.19.1 Functional description

This tutorial describes how to load a saved schedule.

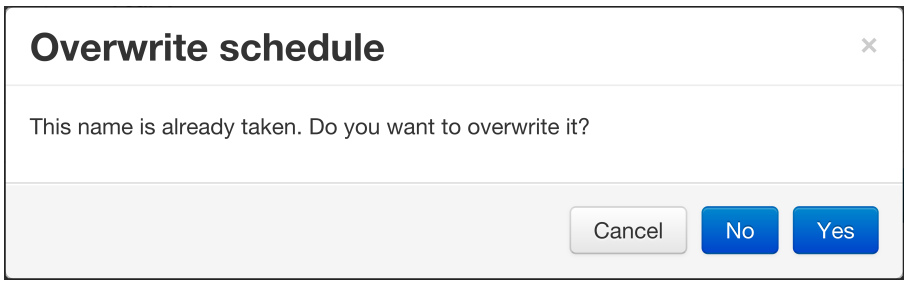

Figure 3.18: The window asking if the user wants to overwrite the schedule.

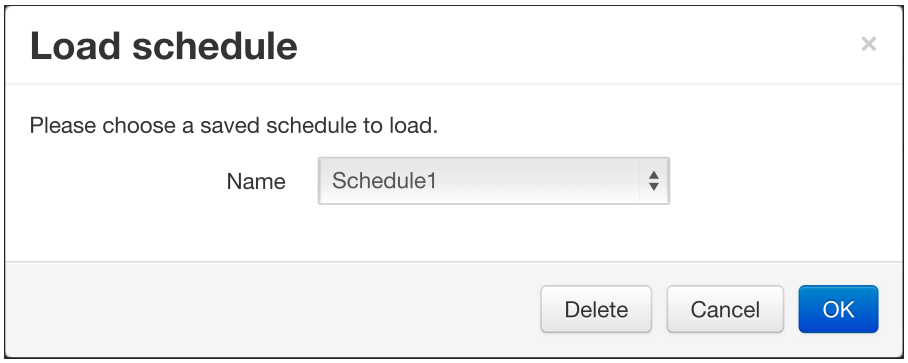

Figure 3.19: The *Load* screen.

3.19.2 Cautions and warnings

- You must be logged in to load a schedule (see section 3.2).
- There has to be at least one saved schedule (see section 3.17 or section 3.18).

3.19.3 Procedures

On the home page of KROKET (figure 3.6), click the *Options* button in the navigation bar. A dropdown menu will appear. Click *Load* there.

The screen as shown in figure 3.19 will show up. Choose the schedule you want to load and click *OK*. The schedule is loaded.

3.19.4 Likely errors

- When there are no schedules saved, instead of the *Load* window there is shown an alert window saying that there are no saved schedules (see figure 3.20). To save a schedule, see section 3.17 or section 3.18.

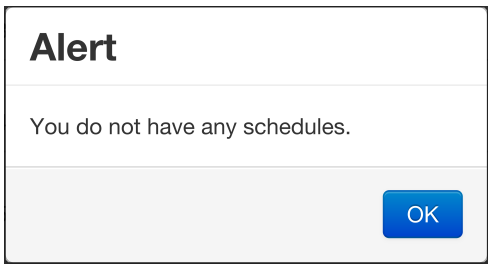

Figure 3.20: The alert window saying there are no saved schedules.

3.20 Deleted saved schedule

3.20.1 Functional description

This tutorial describes how to delete a saved schedule.

3.20.2 Cautions and warnings

- You must be logged in to delete a schedule (see section 3.2).
- There has to be at least one saved schedule (see section 3.17 or section 3.18).

3.20.3 Procedures

On the home page of KROKET (figure 3.6), click the *Options* button in the navigation bar. A dropdown menu will appear. Click *Load* there.

The screen as shown in figure 3.19 will show up. Choose the schedule you want to delete and click on *Delete*. The selected schedule is deleted.

3.20.4 Likely errors

- When there are no schedules saved, instead of the *Load* window there is shown an alert window saying that there are no saved schedules (see figure 3.20). To save a schedule, see section 3.17 or section 3.18.

3.21 Validate schedule

3.21.1 Functional description

This tutorial describes how to validate a schedule.

3.21.2 Cautions and warnings

- For optimal use, be sure a major is chosen (see section 3.4 or section 3.5).

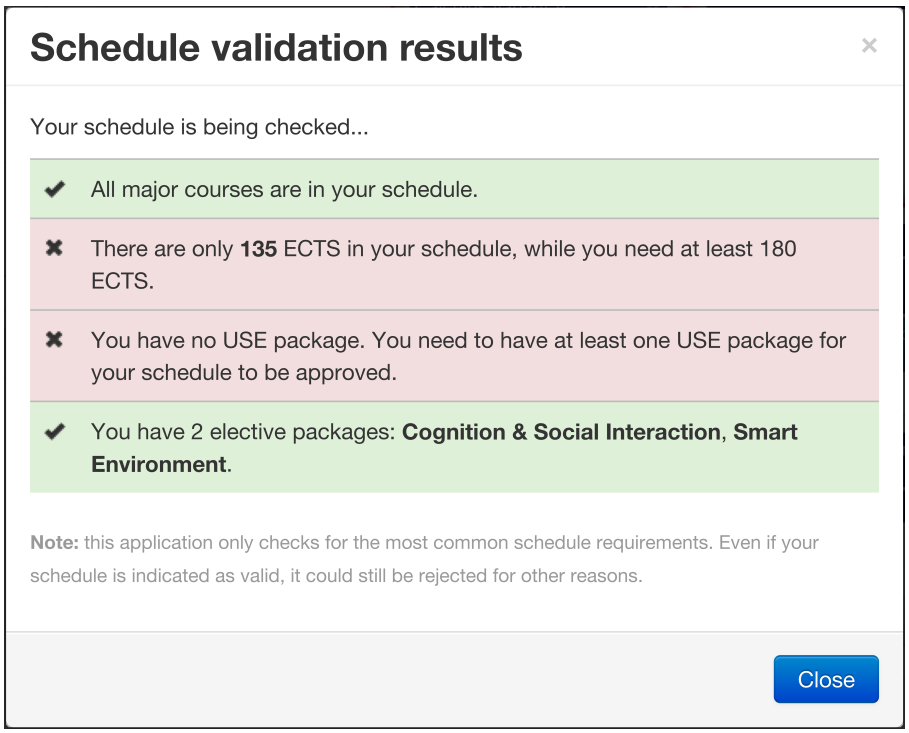
Schedule validation results
Your schedule is being checked...
All major courses are in your schedule.
There are only 135 ECTS in your schedule, while you need at least 180 ECTS.
You have no USE package. You need to have at least one USE package for your schedule to be approved.
You have 2 elective packages: Cognition & Social Interaction, Smart Environment.
Note: this application only checks for the most common schedule requirements. Even if your schedule is indicated as valid, it could still be rejected for other reasons.
Close

Figure 3.21: The validate window with the major *Software science* and two elective packages filled in.

3.21.3 Procedures

On the home page of KROKET (figure 3.6), click the *Options* button in the navigation bar. A dropdown menu will appear. Click *Validate schedule* there.

The screen as shown in figure 3.21 will show up. It shows four criteria that determine whether the schedule is valid or not.

3.21.4 Likely errors

- When no major is chosen, only the second check will give relevant information (see figure 3.22). Choose a major for optimal use of the validate function (see section 3.4 or section 3.5).

3.22 Print schedule

3.22.1 Functional description

This tutorial describes how to print a schedule.

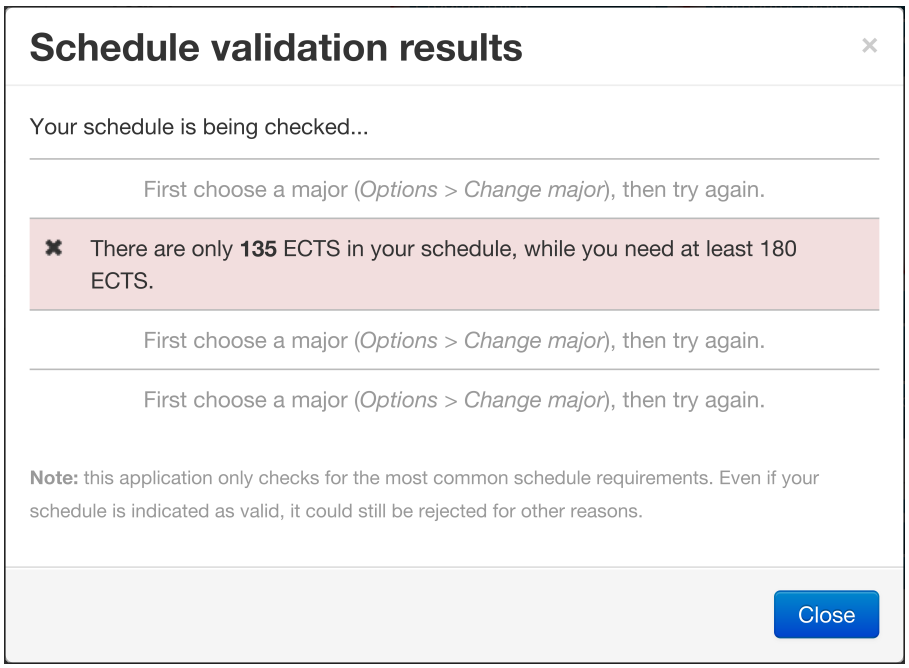
Schedule validation results
Your schedule is being checked...
First choose a major (Options > Change major), then try again.
There are only 135 ECTS in your schedule, while you need at least 180 ECTS.
First choose a major (Options > Change major), then try again.
First choose a major (Options > Change major), then try again.
Note: this application only checks for the most common schedule requirements. Even if your schedule is indicated as valid, it could still be rejected for other reasons.
Close

Figure 3.22: The validate window without a major.

3.22.2 Cautions and warnings

None.

3.22.3 Procedures

On the home page of KROKET (figure 3.6), click the *Options* button in the navigation bar. A dropdown menu will appear. Click *Print schedule* there.

There are shown two windows:

- The print preview window. This is a preview of the schedule which will be printed. Elective subjects are shown in a box with a dotted line. See figure 3.23 for a print preview when the major *Software science* and two elective packages have been chosen.
- The print options window (like figure 3.24). Here the user has to choose the print options before the schedule is printed.

After choosing the print options, the schedule can be printed.

3.22.4 Likely errors

None.

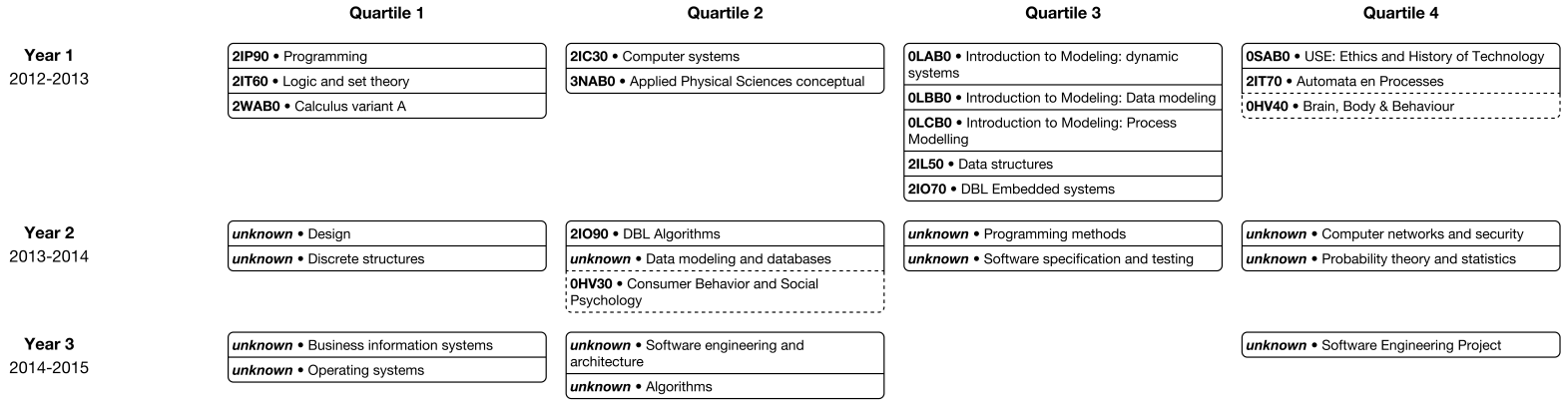
Quartile 1
Quartile 2
Quartile 3
Quartile 4
Year 1
2012-2013
2IP90 • Programming
2IT60 • Logic and set theory
2WAB0 • Calculus variant A
2IC30 • Computer systems
3NAB0 • Applied Physical Sciences conceptual
0LAB0 • Introduction to Modeling: dynamic systems
0LBB0 • Introduction to Modeling: Data modeling
0LCB0 • Introduction to Modeling: Process Modelling
2IL50 • Data structures
2IO70 • DBL Embedded systems
0SAB0 • USE: Ethics and History of Technology
2IT70 • Automata en Processes
0HV40 • Brain, Body & Behaviour
Year 2
2013-2014
unknown • Design
unknown • Discrete structures
2IO90 • DBL Algorithms
unknown • Data modeling and databases
0HV30 • Consumer Behavior and Social Psychology
unknown • Programming methods
unknown • Software specification and testing
unknown • Computer networks and security
unknown • Probability theory and statistics
Year 3
2014-2015
unknown • Business information systems
unknown • Operating systems
unknown • Software engineering and architecture
unknown • Algorithms
unknown • Software Engineering Project

Figure 3.23: The print preview window.

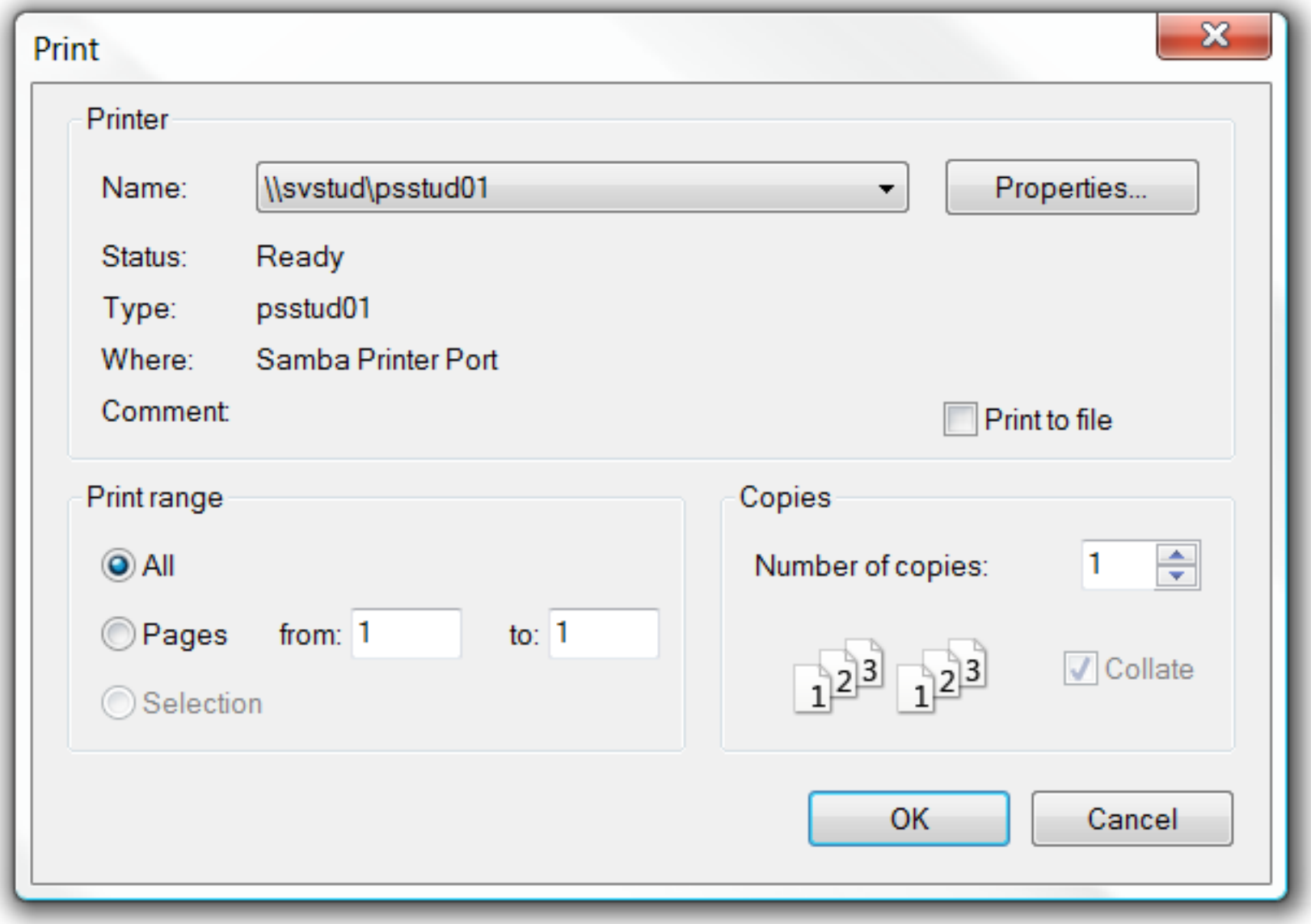

Figure 3.24: The print options window.

3.23 Change language

3.23.1 Functional description

This tutorial describes how to change the language of KROKET.

3.23.2 Cautions and warnings

None.

3.23.3 Procedures

At any time, there is an option to change the language of KROKET. There are two ways possible:

- If the user is in the English version of KROKET, there is a button *Nederlands* in the navigation bar of the home page (figure 3.6). Click on this button and the site will change to the Dutch version.
- If the user is in the Dutch version of KROKET, there is a button *English* in the navigation bar of the home page (figure 3.6). Click on this button and the site will change to the Dutch version.

3.23.4 Likely errors

None.

3.24 Help

3.24.1 Functional description

This tutorial describes how to get to the help page of KROKET.

3.24.2 Cautions and warnings

None.

3.24.3 Procedures

At any time, you can click on the *Help* button in the navigation bar of the home page (figure 3.6). A new tab will appear with the *Help* page of KROKET. This page can be used by simply scrolling downwards or by clicking on the several sections on the left side of the page.

3.24.4 Likely errors

None.

3.25 Send email to kroket

3.25.1 Functional description

This tutorial describes how to send an email to KROKET.

3.25.2 Cautions and warnings

None.

3.25.3 Procedures

Go to het *Help* page of KROKET (see section 3.24). On this page, click on the *About* button in the navigation bar. A new page will appear in the same tab. The page contains extra information about *kroket*. Click on *this e-mail address*. A new window will be opened, where you can write an email and send it to KROKET.

3.25.4 Likely errors

None.

Chapter 4

References

4.1 Login screen

4.1.1 Functional description

This screen is shown when a user goes to the KROKET website. It allows users to enter their username and password. In this way, the user can log in to the KROKET website.

4.1.2 Cautions and warnings

None.

4.1.3 Formal description

The user can perform the operations as given in table 4.1.

Operation	Steps	Result
Set username	Enter the username in the *Username* field	Upon the login operation, the entered username will be used as username.
Set password	Enter the password in the *Password* field	Upon the login operation, the entered password will be used as password.
Login	Click on *Login*	The login screen will close and the home page of KROKET will appear. The user is now logged in.
Continue without login	Click *Continue without login*	The login screen will close and the home page of KROKET will appear. The user is not logged in.
Register	Click on *Register*	The registration screen will appear, see section 4.3.

Table 4.1: Operations in the login screen.

4.1.4 Possible errors

The following errors are possible:

- *Incorrect username or password. Note that these are case-sensitive*. This error will be given when the given combination of username and password can not be found in the database.

4.1.5 Related operations

- Section 4.2;
- Section 4.3;
- Section 4.4.

4.2 Logged in as screens

4.2.1 Functional description

This drop-down menu contains one item for logging out.

4.2.2 Cautions and warnings

None.

4.2.3 Formal description

The user can perform the operations as given in table 4.2.

Operation	Steps	Result
Log out	Click on *Log out* in the drop-down menu	The user will be logged out.

Table 4.2: Operations in the logged in as screen.

4.2.4 Possible errors

No possible errors.

4.2.5 Related operations

- Section 4.1;
- Section 4.4.

4.3 Register screen

4.3.1 Functional description

This screen is shown when a user wants to create an account on KROKET. It can be accessed through the Login screen. It can also be accessed when the user clicks *Continue without login*. In this case, the user can click on *Register* in the top right of the navigation bar. Users need to give a *Username*, *Password* and *Password (confirm)* in order to register.

4.3.2 Cautions and warnings

None.

4.3.3 Formal description

The user can perform the operations as given in table 4.3.

Operation	Steps	Result
Set username	Enter the username in the *Username* field	Upon the register operation, the entered username will be used as username.
Set password	Enter the password in the *Password* field	Upon the register operation, the entered password will be used as password.
Set confirmation password	Enter the password in the *Password (confirmation)* field	Upon the register operation, KROKET will check if the entered confirmation password equals the entered password.
Register	Click on *Register*	The registration screen will close and the home page of KROKET will appear. KROKET will create a new account. The user will automatically log in with this account.
Cancel	Click on *Cancel*	The register screen will close and the home page of KROKET will appear. KROKET will not create a new account.

Table 4.3: Operations in the register screen.

4.3.4 Possible errors

The following errors are possible. If multiple errors apply, the first one in this list will be given:

- *Password must be at least 8 (ASCII) characters*. This warning will be given if the password does not conform to the conditions given for passwords: passwords must be at least 8 non-control ASCII characters.
- *Username must be 5-20 characters and may contain only a-Z, 0-9, ., -, _*. This warning will be given if the username does not conform to the conditions given for usernames: usernames must be between 5 and 20 characters long and may contain only a-z, A-Z, 0-9, ., -, _. Here, the bounds are inclusive.
- *Passwords do not match*. This warning will be given if the password is not equal to the confirmation password.
- *This username is already taken*. This warning will be given if the user chose a username that already exists in the KROKET database.

4.3.5 Related operations

- Section 4.1;
- Section 4.4.

4.4 Home screen

4.4.1 Functional description

This screen is the home page of KROKET. For simplicity, we decompose it into several components. We will then describe the operations on each component.

4.4.2 Cautions and warnings

None.

4.4.3 Formal description

The home page consists of the components as given in table 4.4.

4.4.4 Possible errors

Not applicable.

4.4.5 Related operations

- Section 4.1;
- Section 4.2;
- Section 4.3;
- Section 4.5;

Component	Activation
Help	Click on *Help* in the navigation bar. Upon the help operation, the help page will be opened in a new tab. The help page is described in 4.5.
Log in	Click on *Log in* in the navigation bar. Upon the log in operation, the login screen will appear. See also 4.1.
Options	Click on *Options* in the navigation bar. Upon the options operation, a drop-down menu will appear. The drop-down menu is described in 4.7.
Register	Click on *Register* in the navigation bar. Upon the register operation, the register screen will appear. See also 4.3.
Schedule	Click on *Add year*, *Remove year* or *Empty schedule*. These operations change the schedule. See 4.14.
Search	Click on *Search*. Upon the search operation, a search list will appear. See 4.15.
Search list	Click on any subject in the search list. See 4.18.
Subject information pop-up	Click on any subject in the search list for the first time or click on the icon in the top left of the subject information pop-up. See 4.19.
TU/e	Click on the *TU/e* logo in the navigation bar. The user will be directed to `www.tue.nl`.

Table 4.4: Operations in the home screen.

- Section 4.6;
- Section 4.7;
- Section 4.14;
- Section 4.15;
- Section 4.19.

4.5 Help screen

4.5.1 Functional description

This screen is the help page of KROKET.

4.5.2 Cautions and warnings

None.

4.5.3 Formal description

The help page mainly consists of text. The user can perform the operations as given in table 4.5.

Operation	Steps	Result
About	Click on *About* in the navigation bar	Upon the *About* operation, the about page will be shown. The about page is described in 4.6.
Select chapter	Click on a chapter in the menu: the menu with chapters can be found on the left side of the screen	Upon the select chapter operation, the user's browser will jump to the corresponding chapter.

Table 4.5: Operations in the help screen.

4.5.4 Possible errors

No possible errors.

4.5.5 Related operations

- Section 4.4;
- Section 4.6.

4.6 About screen

4.6.1 Functional description

This screen is the about page of KROKET.

4.6.2 Cautions and warnings

None.

4.6.3 Formal description

The about page mainly consists of text. The user can perform the operations as given in table 4.6.

4.6.4 Possible errors

No possible errors.

Operation	Steps	Result
Email KROKET	Click on *this e-mail address* in the text	Upon the email KROKET operation, a new window is opened. Users can then email KROKET.
Help	Click on *Help* in the navigation bar	Upon the help operation, the help page will be shown. The help page is described in 4.5.

Table 4.6: Operations in the about screen.

4.6.5 Related operations

- Section 4.4;
- Section 4.5.

4.7 Options screen

4.7.1 Functional description

This drop-down menu contains the options for KROKET. For simplicity, we decompose it into several components. We will then describe the operations on each component.

4.7.2 Cautions and warnings

None.

4.7.3 Formal description

The options drop-down menu consists of the items given in table 4.7.

4.7.4 Possible errors

Not applicable. If an option is not available, it will be disabled. We will describe in detail when an option is enabled or disabled in the corresponding section for that option.

4.7.5 Related operations

- Section 4.4;
- Section 4.8;
- Section 4.9;
- Section 4.10;
- Section 4.12;

Component	Activation
Load	Click on *Load* in the drop-down menu. Upon the load operation, the load screen will appear. The load screen is described in 4.8.
Save	Click on *Save* in the drop-down menu. Upon the save operation, the save screen will appear. See also 4.9.
Save as	Click on *Save as* in the drop-down menu. Upon the save as operation, the save as screen will appear. See also 4.10.
Print schedule	Click on *Print schedule* in the navigation bar. Upon the print schedule operation, two new screens will appear. The first screen contains the schedule in a printer-friendly layout. The second screen is the browser's print dialog.
Validate schedule	Click on *Validate schedule* in the drop-down menu. Upon the validate schedule operation, a new screen will appear. This screen is described in 4.12.
Change major	Click on *Change major* in the drop-down menu. Upon the change major operation, a new screen will appear. See 4.13.
Fill in major subjects	Click on *Fill in major subjects*. Upon the fill in major subjects operation, all major subjects are added to the schedule by KROKET. This operation is only enabled if the user has already chosen its major.

Table 4.7: Operations in the options drop-down menu.

- Section 4.13.

4.8 Load screen

4.8.1 Functional description

This screen is shown when a user wants to load a schedule.

4.8.2 Cautions and warnings

None.

4.8.3 Formal description

The user can perform the operations as given in table 4.8.

4.8.4 Possible errors

This option is only available if the user is logged in. The following errors are possible:

- *You do not have any schedules*. This warning will be given if the user has no saved schedules. In this case, the load screen will not appear.

Operation	Steps	Result
Set name	Select a name in the drop-down menu	Upon the OK operation, the schedule with this name will be loaded.
Delete	Click on *Delete*	Upon the delete operation, the schedule with the given name will be deleted. This option is only available if the user has a schedule.
Cancel	Click on *Cancel*	The load screen will close and the home page of KROKET will appear. KROKET will not load a schedule.
OK	Click on *OK*	Upon the OK operation, the schedule with the given name will be loaded.

Table 4.8: Operations in the load screen.

4.8.5 Related operations

- Section 4.7;
- Section 4.9;
- Section 4.10.

4.9 Save screen

4.9.1 Functional description

This screen is shown when a user wants to save a schedule.

4.9.2 Cautions and warnings

None.

4.9.3 Formal description

The user can perform the operations as given in table 4.9.

4.9.4 Possible errors

This option is only available if the user is logged in. The screen is shown when the user saves its schedule for the first time. In this case, the user has to provide a schedule name. Otherwise, this screen will not be shown and the schedule will be saved with the current schedule name.

It is possible that a user chooses an already existing schedule name (recall that schedules and schedule names are only unique with respect to a specific user. Therefore, it is possible

Operation	Steps	Result
Set name	Enter a name in the text field	Upon the OK operation, the schedule will be saved with this name.
Cancel	Click on *Cancel*	The save screen will close and the home page of KROKET will appear. KROKET will not save a schedule.
OK	Click on *OK*	Upon the OK operation, the schedule will be saved with the given name.

Table 4.9: Operations in the save screen.

that two different users choose the same schedule name. Thus, with an existing schedule name, we mean that the schedule has already been created by that specific user). In this case, the user has the option to overwrite that schedule. This is described in section 4.11.

4.9.5 Related operations

- Section 4.7;
- Section 4.8;
- Section 4.10.

4.10 Save as screen

4.10.1 Functional description

This screen is shown when a user wants to save a schedule with a specified name.

4.10.2 Cautions and warnings

None.

4.10.3 Formal description

The user can perform the operations as given in table 4.10.

4.10.4 Possible errors

This option is only available if the user is logged in. It is possible that a user chooses an already existing schedule name. In this case, the user has the option to overwrite that schedule. This is described in section 4.11.

Operation	Steps	Result
Set name	Enter a name in the text field	Upon the OK operation, the schedule will be saved with this name.
Cancel	Click on *Cancel*	The save as screen will close and the home page of KROKET will appear. KROKET will not save a schedule.
OK	Click on *OK*	Upon the OK operation, the schedule will be saved with the given name.

Table 4.10: Operations in the save as screen.

4.10.5 Related operations

- Section 4.7;
- Section 4.8;
- Section 4.9.

4.11 Overwrite screen

4.11.1 Functional description

This screen is shown when a user attempts to save a schedule with an already existing name.

4.11.2 Cautions and warnings

None.

4.11.3 Formal description

The user can perform the operations as given in table 4.11.

4.11.4 Possible errors

No possible errors.

4.11.5 Related operations

- Section 4.9;
- Section 4.10.

Operation	Steps	Result
Cancel	Click on *Cancel*	The overwrite screen will close and the home page of KROKET will appear. KROKET will not overwrite a schedule.
No	Click on *No*	The overwrite screen will close and the save as screen will appear. KROKET will not overwrite a schedule.
Yes	Click on *Yes*	The overwrite screen will close and the home page of KROKET will appear. KROKET will overwrite the schedule.

Table 4.11: Operations in the overwrite screen.

4.12 Validate screen

4.12.1 Functional description

This screen is shown when a user wants to validate its schedule.

4.12.2 Cautions and warnings

None.

4.12.3 Formal description

The user can perform the operations as given in table 4.12.

Operation	Steps	Result
Close	Click on *Close*	The validate screen will close and the home page of KROKET will appear.

Table 4.12: Operations in the validate screen.

4.12.4 Possible errors

No possible errors.

4.12.5 Related operations

- Section 4.7.

4.13 Change major screen

4.13.1 Functional description

This screen is shown when a user wants to change its major on KROKET.

4.13.2 Cautions and warnings

None.

4.13.3 Formal description

The user can perform the operations as given in table 4.13.

Operation	Steps	Result
Set first year	Select a *first year on the TU/e* in the drop-down menu	Upon the save operation, this will be stored as the first year.
Set major	Select a *major* in the drop-down menu	Upon the save operation, this will be stored as the major.
Cancel	Click on *Cancel*	The change major screen will close and the home page of KROKET will appear. KROKET will not change the user's first year on the TU/e or the user's major.
Save	Click on *Save*	The change major screen will close and the home page of KROKET will appear. KROKET will store the user's first year on the TU/e and the user's major.

Table 4.13: Operations in the change major screen.

4.13.4 Possible errors

No possible errors.

4.13.5 Related operations

- Section 4.7.

4.14 Schedule screen

4.14.1 Functional description

This screen is part of the home page of KROKET. It consists of a schedule and three buttons: add year, remove year and empty schedule.

4.14.2 Cautions and warnings

None.

4.14.3 Formal description

The user can perform the operations as given in table 4.14.

Operation	Steps	Result
Add year	Click on the *Add year* button	A new year is added to the schedule.
Remove year	Click on the *Remove year* button	The last year is removed from the schedule, including all subjects in that year.
Empty schedule	Click on the *Empty schedule* button	The schedule is emptied. This means that all subjects are removed.

Table 4.14: Operations in the schedule screen.

4.14.4 Possible errors

Buttons might be disabled for the following reasons:

- The add year button will be disabled if the user has a total number of 10 years in its schedule.
- The remove year button will be disabled if the user has a total number of 3 years in its schedule.

4.14.5 Related operations

- Section 4.4.

4.15 Search screen

4.15.1 Functional description

This screen is part of the home page of KROKET. It allows users to search for subjects and packages.

4.15.2 Cautions and warnings

None.

4.15.3 Formal description

The search screen consists of two components. The components are given in table 4.15.

Component	Activation
Subjects	Click on the *Subjects* tab. Specific operations for this component are given in 4.16.
Coherent packages	Click on the *Coherent packages* tab. Specific operations for this component are given in 4.17.
Search	Click on the *Search* button. KROKET will search for subjects or coherent packages. The search results are displayed in the search list, see 4.18.

Table 4.15: Operations in the search screen.

4.15.4 Possible errors

Not applicable.

4.15.5 Related operations

- Section 4.4;
- Section 4.16;
- Section 4.17;
- Section 4.18.

4.16 Subjects screen

4.16.1 Functional description

This screen is part of the search screen of KROKET. It allows users to search for subjects.

4.16.2 Cautions and warnings

None.

4.16.3 Formal description

The user can perform the operations as given in table 4.16.

4.16.4 Possible errors

As indicated in table 4.16, the search button will be disabled if the user has not chosen its major yet and searches for broadening or deepening subjects. Furthermore, the following operations can only be executed after clicking on advanced options: difficulties, years, quartiles, timeslots and major.

4.16.5 Related operations

- Section 4.15;
- Section 4.18.

4.17 Coherent packages screen

4.17.1 Functional description

This screen is part of the search screen of KROKET. It allows users to search for coherent packages.

4.17.2 Cautions and warnings

None.

4.17.3 Formal description

The user can perform the operations as given in table 4.17.

4.17.4 Possible errors

No possible errors.

4.17.5 Related operations

- Section 4.15;
- Section 4.18.

4.18 Search list screen

4.18.1 Functional description

This screen contains the search list. The search list is either a list of subjects or a list of packages.

4.18.2 Cautions and warnings

None.

4.18.3 Formal description

If the search list consists of a list of subjects, the user can perform the operations as given in table 4.18.

Note that these two operations implement the same functionality. If the search list consists of a list of packages, the user can perform the operations as given in table 4.19.

4.18.4 Possible errors

If the search list consists of a list of packages, the user can only perform the click subject or drag subject operation after the click package operation.

4.18.5 Related operations

- Section 4.15;
- Section 4.16;
- Section 4.17.

4.19 Subject information screen

4.19.1 Functional description

This screen contains the subject information.

4.19.2 Cautions and warnings

None.

4.19.3 Formal description

The user can perform the operations as given in table 4.20.

4.19.4 Possible errors

Not applicable.

4.19.5 Related operations

- Section 4.4.

Operation	Steps	Result
Interest	Enter search terms in the *What are you interested in?* field	Upon the search operation, this will be used as the search terms.
All subjects	Click on the *All subjects* button	Upon the search operation, KROKET will search for all subjects.
Deepening	Click on the *Deepening* button	Upon the search operation, KROKET will search for deepening subjects. This will disable the search button if the user has not chosen a major.
Broadening	Click on the *Broadening* button	Upon the search operation, KROKET will search for broadening subjects. This will disable the search button if the user has not chosen a major.
Advanced options	Click on *Advanced options*	This shows the advanced search options.
Difficulties	Click on one of the following buttons: *All difficulties*, *Basic*, *Intermediate* or *Advanced*	Only one of the four buttons can be enabled. Filters the search results based on the enabled button.
Years	Click on one of the following buttons: *All years*, *1*, *2* or *3*	Only one of the four buttons can be enabled. Filters the search results based on the enabled button.
Quartiles	Click on one of the following buttons: *All quartiles*, *1*, *2*, *3* or *4*	Only one of the five buttons can be enabled. Filters the search results based on the enabled button.
Timeslots	Click on one of the following buttons: *All timeslots*, *A*, *B*, *C*, *D* or *E*	Only one of the six buttons can be enabled. Filters the search results based on the enabled button.
Major	Click on a major in the drop-down menu below *Search for courses of major*	Filters the search results: only subjects of the selected major will be returned.

Table 4.16: Operations in the subjects screen.

Operation	Steps	Result
Package or subject name	Enter search terms in the *Package or subject name* field	Upon the search operation, the entered search terms will be used as the search terms.
Options	Click on the *Both*, *USE package*, *Elective package* button	Only one of the three buttons can be enabled. Filters the search results based on the enabled button.

Table 4.17: Operations in the coherent packages screen.

Operation	Steps	Result
Click subject	Click on s subject in the search list, click on destination place in schedule	Removes the subject from the search list and adds it to the schedule.
Drag subject	Drag a subject from the search list to the destination place in the schedule	Removes the subject from the search list and adds it to the schedule.

Table 4.18: Operations in the search list screen.

Operation	Steps	Result
Click package	Click on a package in the search list	Show or hide list of subjects in package.
Click subject	Click on a subject in the search list, click on destination place in schedule	Removes the subject from the search list and adds it to the schedule.
Drag subject	Drag a subject from the search list to the destination place in the schedule	Removes the subject from the search list and adds it to the schedule.

Table 4.19: Operations in the search list screen.

Operation	Steps	Result
Show	Click on the icon in the the top left	Show or hide subject information. The subject information screen will automatically be shown if the user clicks on a subject for the first time.
General information	Click on the *General information* tab	Shows general subject information: subject name, subject code, difficulty level, ECTS and prerequisites.
Planning	Click on the *Planning* tab	Shows planning information as a list. There is an entry in the list for each combination of major, year, quartile and timeslot that the subject is given in. Year can be 1, 2 or 3.
Description	Click on the *Description* tab	Shows the description of a subject.
Study goals	Click on the *Study goals* tab	Shows the study goals of a subject.
Evaluations	Click on the *Evaluations* tab	Shows the student evaluations of a subject. This is a number between 1 and 10, where 1 is the lowest possible student evaluation and 10 is the highest possible student evaluation.

Table 4.20: Operations in the subject information screen.

Appendix A

Error messages and recovery procedures

A.1 Server is not responding

This error message is given in two cases. Firstly, the client will give this error message after a certain timeout depending on the query. Secondly, the client will give this error message if the server returns an error. The recommended recovery procedure is to try again later.

A.2 Other error messages

No other error messages exist. If for some reason the client crashes, we recommend the following recovery procedure: press `F5` to refresh the page and, if desired, load a saved schedule.

Appendix B

Glossary

Bachelor College The result of a reform of bachelor education at the TU/e. See URD [2] appendix B for a description.

KROKET Software engineering team developing the application.

Appendix C

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